

# PROG 2203 – C++ PROGRAMMING II

Spring 2019

## Instructor Information

Shane Carroll May, Ed.D. | 479.986.4067 | smay1@nwacc.edu | SGBDC 2016 | Office hours posted on Canvas.

## Course Information

### Required Text

Murach C++ – ISBN: 9781943872275

### Course Description

This course is a continuation of PROG 1203 (C++ Programming). After a review, the student is introduced to more advanced programming concepts essential for students seeking a career in software development. Topics include: Object oriented programming and design, database access, lists, queues, trees, hash tables, graphs, recursion, and searching/sorting algorithms. Big-O notation will also be discussed. (Outside lab time may be required).

### Learning Objectives

- Create Classes incorporating related data and the methods used to manipulate them given any program manipulating data.
- Create a program to read/write complex data to/from external file into a collection of objects.
- Create a program to read/write complex data to/from a database into a collection of objects.
- Manipulate Objects to create Linked lists, Stacks, Queues, Trees, and Graphs
- Create and use pointers internal to the class to arrange the data into a List, Queue, Stack or Tree interchangeable as needed.
- Identify, explain, and apply searching and sorting algorithms
- Describe the running time of algorithms using Big O notation
- Determine the Big O notation of user-defined function.

### Software

Microsoft Visual Studio (>= 2017) will be used for in class coding exercises, examples, and homework. It is available on all computers in the classroom and in the computer lab (SGBDC 1048). Links to the software are posted on Canvas.

## Course Guidelines

### Communication

Email is the official means of communication at NWACC and in this course. I will make every attempt to answer your email query or comment within 24 hours. When sending email, please include the name of this course.

Check your email frequently – daily if possible, but at least several times a week – for correspondence from your Instructor(s), Financial Aid, Student Records, Cashier's Office, etc.

### Grades

Grades in this course will be earned, not given. I will do my best as an instructor to create an engaging and beneficial learning environment, but it is ultimately up to you to create success in this course. Your education is your own; ensure that you make the most of it.

## Assignments

All assignments will be posted on Canvas and your solutions / responses must be submitted through Canvas for proper grading and credit. Assignments will not be accepted through email, hard-copy, etc.

- Assignments files must be named and submitted as specified in the assignment directions posted in Canvas. Files saved with the wrong names or file types will not receive points for the assignment.
- Enough time will be allowed to complete each assignment. However, **DO NOT** wait until the last moment to begin your assignment – they usually will take more time than you expect.
- You alone are responsible for keeping copies of all your assignments at least until they have been graded. Save your work often to either a personal flash drive or to your Student drive in the SGBDC building.
- The assignments' requirements and due dates may be revised at the discretion of the instructor. Check Canvas regularly for updates and revisions.
- Homework assignments will be graded as soon as possible after the due date, and feedback will be provided through Canvas. Appeals must be submitted via email within one week of the assignment grades being posted to be considered.

## Late Assignments

All assignments are due by 11:59 pm (CST) on the due date shown in Canvas. **NO** late work will be accepted. Assignments **MUST** be submitted through Canvas and will **NOT** be accepted after the cutoff date. There are **NO** exceptions to this rule, so plan accordingly. The Instructor is not responsible for assignments that get lost or mangled, email issues, or your computer. Your computer system emergency does not constitute an emergency on the part of the Instructor or NWACC.

## Schedule

Mon	Wed	Topic	Assignment	Points	Due Date
1/14/2019	1/16/2019	Introduction / Reviews	HW1	40	1/23/2019
1/21/2019	1/23/2019	C++ Templates	HW2	120	2/6/2019
1/28/2019	1/30/2019	Algorithm Analysis			
2/4/2019	2/6/2019	ArrayList Implementation	HW3	120	2/20/2019
2/11/2019	2/13/2019	LinkedList Implementation			
2/18/2019	2/20/2019	Binary Search Tree (BST)	HW4	120	3/6/2019
2/25/2019	2/27/2019	Balanced Tree			
3/4/2019	3/6/2019	Balanced Tree	HW5	120	3/27/2019
3/11/2019	3/13/2019	Hash Table / Map	HW6	120	3/27/2019
3/18/2019	3/20/2019	<i>Spring Break (No Class)</i>			
3/25/2019	3/27/2019	PQ (Heap)	HW7	120	4/10/2019
4/1/2019	4/3/2019	Sorting - Shell / Quick / Merge Sort / Radix Sort			
4/8/2019	4/10/2019	Sorting - Shell / Quick / Merge Sort / Radix Sort	HW8	120	4/24/2019
4/15/2019	4/17/2019	Graphs			
4/22/2019	4/24/2019	Graphs	HW9	120	5/8/2019
4/29/2019	5/1/2019	Optional Topic			

*Total 1000*

## Grievance Procedures

Please contact me first with any questions or concerns about the class. I am happy to discuss any grievances you may have regarding the course and I will do my best to resolve them for you. If there are technical problems, please contact me or contact the NWACC Help Desk. If you have concerns about the class that you do not wish to discuss further with me, please contact my Dean - Dr. Christine Davis (cdavis22@nwacc.edu).

## Policies

All students are responsible for understanding the policies which can be found here:

<https://nwacc.instructure.com/courses/854631/pages/syllabus-policies>

## Fine Print

The instructor reserves the right to make needed changes in this syllabus. Changes will be posted on Canvas. ***Your instructor wants you to do well in class and will strive to do his or her best to help you. Keep in mind that you are the primary facilitator of your success in your education.***